Gas Journal

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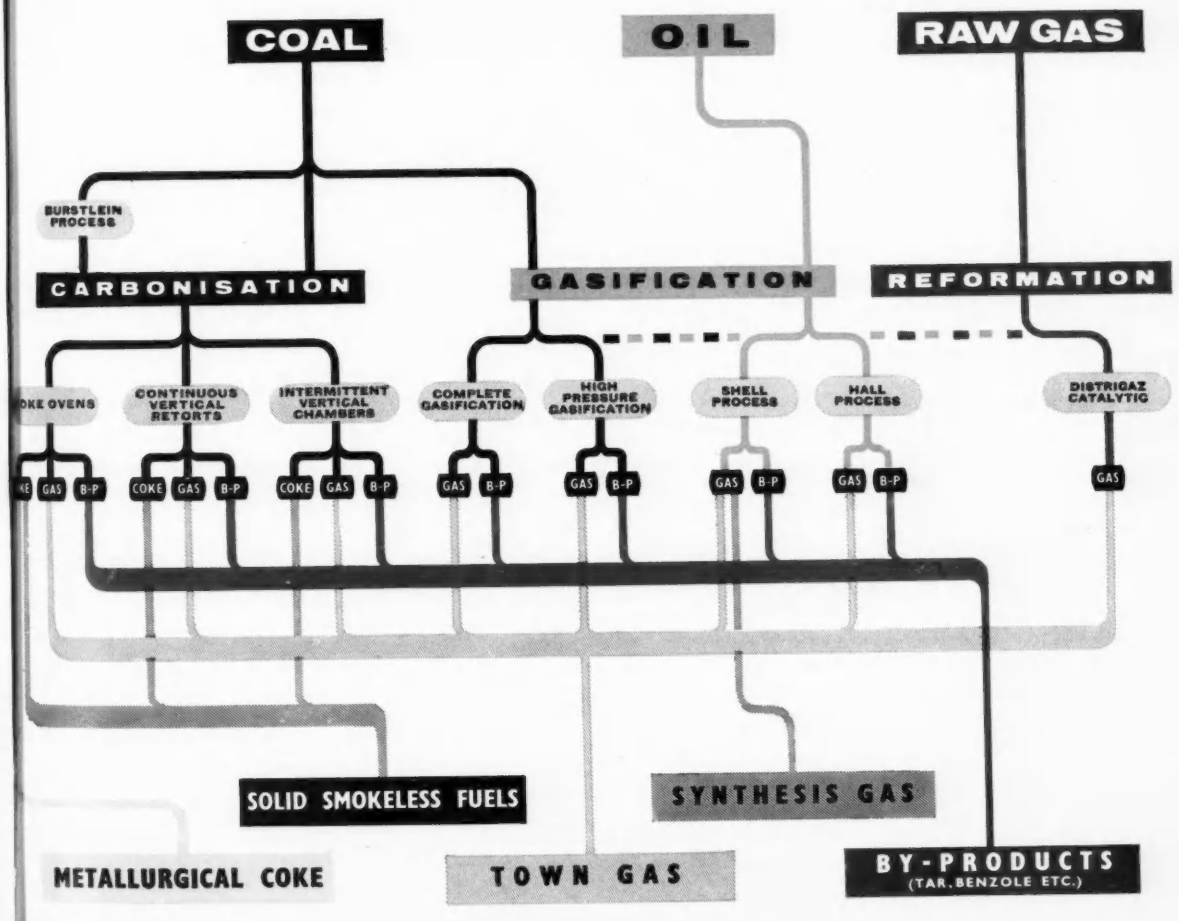

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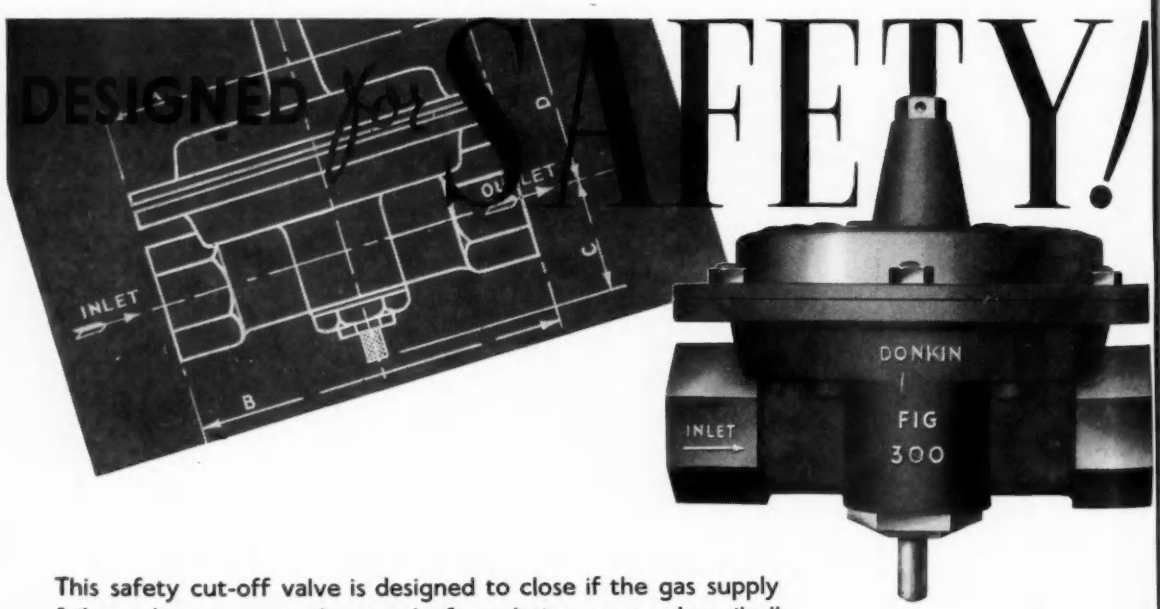

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Gas Journal

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110TH YEAR

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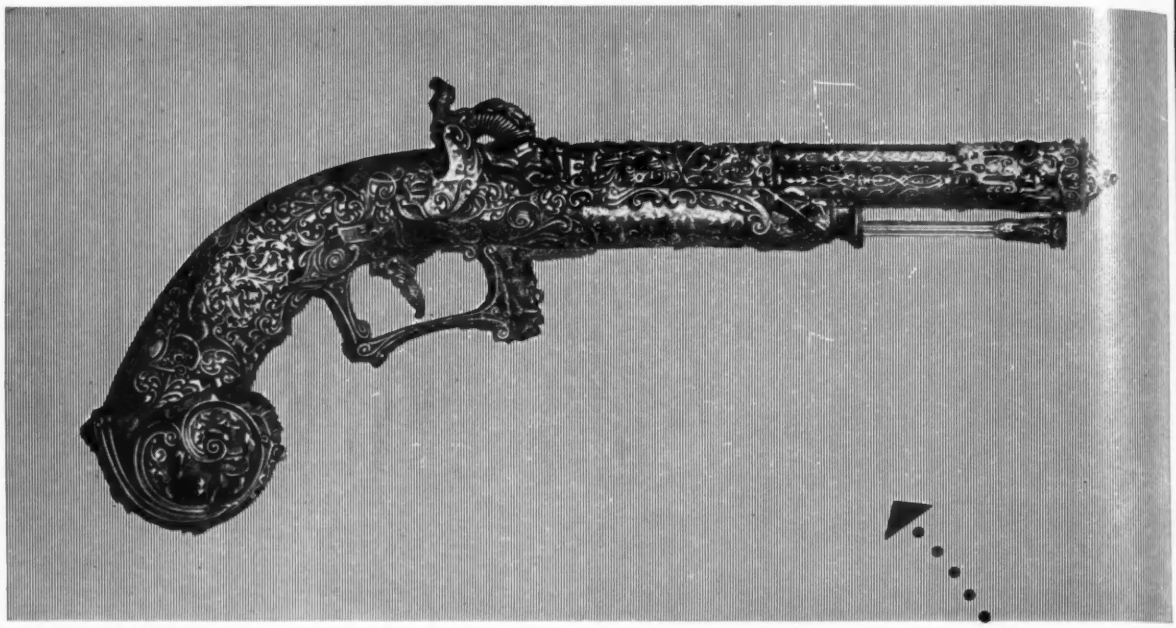

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something in common

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1958

Gas Journal

VOLUME 296. No. 4975 NOVEMBER 19, 1958. 110th YEAR

The W.G.F. Comes Down to Earth

WE can with some justification claim to have had a hand in the 14th Branch Conference of the Women's Gas Federation which took place at Friends' House, Euston Road, last week. The principal item on the programme was a discussion by a panel of speakers on 'The Federation and the Industry' which had clearly been occasioned by the circulation to all branches of an editorial of ours entitled 'How Useful is the Women's Gas Federation?' It was also gratifying to hear one of the speakers championing our sister journal *Gas Service*. Personal satisfaction apart, we are able to record what might be termed 'a hardening of the agenda' and a real effort to get down to brass tacks. Indeed, faced with the provocation supplied by Mr. A. V. Horsfall, Sales and Service Manager of the West Midlands Gas Board, the meeting had no option but to consider seriously the mutual responsibilities of the Federation and the industry.

Introducing this session, Mrs. G. Evershed, Chairman of the National Executive Committee, spoke of the criticisms which had been made of the Federation and pointed out that the industry had also been criticised for not making more use of the Federation; she wondered whether the local gas boards could not look upon the W.G.F. branches as public relations units and as a means of spreading the gas story. And then in piled the courageous Mr. Horsfall, who maintained that although there was much to be praised in the Federation, there was a great deal of room for improvement. The gas boards wanted the Federation to do their job properly, he said, and in particular they and the manufacturers wanted the W.G.F. members to have the opportunity of expressing their opinions of the appliances they sold. 'You are the people who have to use them,' he remarked, 'and if you don't know what is wanted who the devil does!' He felt the Federation should get to know more about other fuel services as it was essential to know what the gas industry's competitors were doing and, above all, to be sure of their facts. They should know how gas compared with electricity for cooking and heating, what oil would do in the way of house warming today, and so on. It was no good getting together at district meetings if all they did was to go away and do nothing. They must get around to outside organisations and give talks about gas. 'You are the direct liaison between the public and the gas industry,' he said. 'Don't just talk among yourselves. Go to girls clubs, welfare organisations and old people's clubs. Members ought to know more about the gas industry as an industry, not just about the appliances, and should be able to tell other people of the industry's plans for the future. He wondered how many members had taken the trouble to read the story about imported gas coming from Venezuela and the use of low-grade coals for making gas; they should know all about these things, and there was plenty of literature available.

Warming to his theme, Mr. Horsfall said that he had seen a questionnaire concerning heating the living room which had been filled in by members, and he was astonished at the ignorance shown. Reading through the forms he saw that someone insisted that a coke fire would not keep in all night without using coal as well—surely they realised that the reason for this was either that there was something wrong with the fire itself or that it was a *coal* burning fire? It was the stove which was wrong, not the fuel. Another member had simply written that gas coke fires were too expensive to burn. 'What good is a statement like that to the boards?' asked Mr. Horsfall. 'Too expensive in comparison with what?' He thought that the W.G.F. members could give the boards much more help in research. For instance, they were spending a lot of money on installing gas appliances in selected houses to find out what it cost to use gas for all normal purposes for a whole year. The W.G.F. were in a position to provide the information without the boards going to all this expense and trouble. If members would keep a clear and concise record of what they actually used in the way of gas—how often the gas fire was turned on, how many baths were taken, and so on—it would be really helpful.

Whereupon Mr. Horsfall climbed down from his white charger, hung up his sword and made way for Mr. J. A. Buckley, Eastern Divisional Manager of the North Thames Board, who advocated a five- or ten-minute flash of the new developments in the gas industry at each meeting, supported by written and descriptive

material. He felt that members should keep up to date with the industry's developments and that every member of the Federation should be able to get hold of a copy of *Gas Service*. 'It has an excellent women's viewpoint coverage,' said Mr. Buckley, 'and if the interest shown by members is sufficient it would surely pay the Editor to build up this side of the magazine.' The sequel to finding out about all the new appliances and developments was to pass the information on to other people. 'Your word will do more good even than the gas sales staff because the buyer knows that you are the people who use these things.' Because Federation members were in a position to have a detached view of the gas industry the boards welcomed the criticisms and helpful suggestions which came from the different branches.

Earlier Mr. W. D. King, Chairman of Radiation Group Sales, and the first of the three panel speakers, had advocated the carrying out of market research on gas appliances by members who could then pass the information back to the industry and to the manufacturers. In order to achieve the best results, the Gas Council and the area boards must give the Federation all the information it needed and every possible encouragement to go out and use it.

However, these masculine critics did not have everything their own way. A member from Sutton Coldfield, who said that she was most annoyed with the speakers for accusing them of not doing enough, pointed out that they were all voluntary workers with very little spare time; many of them were serving on other committees and really could not do all that Mr. Horsfall suggested in the way of providing the boards with detailed reports of their personal gas usage. As for keeping up to date with the developments of the gas industry, she felt sure that most members already had access to *Gas Service* but could not copies be placed in libraries so that the public could also see them. A Llanelly Branch member also thought Mr. Horsfall was far too critical and maintained that he was wrong in supposing that young people and old age pensioners would want to listen to talks about gas.

Summing up, Mrs. Evershed said it was obvious that more area conferences were needed, so that there was more than one opportunity a year to discuss vital questions. She felt they could benefit from open meetings to which they could invite other women's organisations. There were now two bright spots on the horizon—automation in the home and the Clean Air Act. The W.G.F. had a very great work to perform in informing the public on these subjects.

When the chairman of the Lincoln Branch remarked that if the W.G.F. could not stand a bit of criticism and profit by it then they should not have been going for 23 years, the enthusiastic applause suggested that the majority of delegates were in complete agreement and had taken the speakers' criticisms well.

The other main item in the day's proceedings was a talk by Mr. J. E. Davis, Chief Technical Officer to the South Eastern Board, on 'The New Look,' which should have given the delegates some idea of the advances now being made in gas production and utilisation. Finally, there were three items put up for discussion which typified the very weaknesses which have beset the W.G.F. for years. Two—the quality of enamel on gas cookers, and the easier cleaning of ovens—should have been dealt with in the Federation's own magazine. The third point, believe it or not, was the pollution of the sea by sewage!

However, despite this rather stupid and irrelevant ending, the conference as a whole showed greater realism and a livelier pulse than we can remember in previous years. We believe the Federation could and should be a much more useful adjunct than it now is. Perhaps last week's meeting will bring that objective nearer.

F.B.I. Report on Nationalisation

IN reviewing the recent book on nationalisation by Mr. Kelf-Cohen, we ventured a few comments on State ownership. It is a pity that *Nationalisation: A Report*, published by the Federation of British Industries, could not have appeared a fortnight earlier and thus permitted both works to have been dealt with at the same time. This new work, brief though it is, covers a good deal of ground. Its theme is that the country ought not to be satisfied with the performance of the nationalised industries. Even the threat of further nationalisation, it concludes, jeopardises the country's prospects of prosperity. As for the Socialist party's latest plan to 'nationalise by the back door' through the acquisition of equities, it is 'obsessed by a picture of board-room timidity and sluggishness which are to be blown away by a vigorous expansionist Whitehall.' The Federation's report gives the results of an examination of the whole question of nationalisation. This has been in progress since last February. It is based largely on the findings of a working party, under the chairmanship of Lord Sinclair. Its members were drawn from a variety of industries, and some have experience of nationalisation.

In presenting the report, Sir Hugh Beaver, says: 'We are not in any way seeking the denationalisation of the nationalised industries. Nor is this an attempt to take up the cases of particular industries like road haulage, steel, the chemical industry or brewing. But the report is quite emphatic that there is no case at all for further nationalisation in this country except at the risk of damage to the economy of the country and the standard of living of everybody.' The report repeatedly stresses this. 'Some it is now impracticable to restore to private hands, even if it is in practice desirable,' it declares. 'On the other hand, at least one of them, namely civil air transport, it may be both practicable and desirable to set free.'

Examining the records of the State industries, it says the figures leave no room for doubt that over the field of nationalisation as a whole the financial obligations imposed by the Acts have not been discharged. The two leading undertakings, the National Coal Board and the British Transport Commission, both showed large cumulative losses from vesting to the end of 1957. The two airways corporations had also 'indifferent financial records.' The Central Electricity Authority and the Gas Council and its area boards had fared better. Their surpluses, however, were small in relation to the amount of capital employed, and if depreciation had been provided on a replacement basis it was doubtful how much, if any, of them would have been left. Only the gas and electricity undertakings had come at all near to satisfying the normal commercial tests of efficiency.

Personal

MR. G. K. MARCH relinquishes his appointment as Managing Director of Midland Brass Fittings, Ltd., with effect from December 31, after 40 years' service and 45 years in the fittings industry. He is remaining with the Company as Chairman to be available for consultation and advice. Among the earliest to appreciate the need for safety devices on gas cocks, he was largely responsible for the several ingenious patterns his firm patented and introduced to the trade between the wars. He was appointed Director in 1943; Managing Director in 1949, and Chairman in 1952; and will be succeeded by MR. DOUGLAS MCINTOSH who will direct the Sales and Service policy and MR. GEORGE WILKINSON who will take over the works side.

MR. R. PRINCE, Chief Engineer, and MR. F. WHITE, Chief Supply Officer, South Eastern Gas Board, are retiring next year. The Board has appointed MR. C. STOTT as Chief Engineer (Designate), and MR. D. L. HORLOCK as Chief Supply Officer (Designate).

MR. H. N. ADAMS has been appointed to succeed the late MR. W. N. MCCANN as branch Manager of Silvertown Rubber Co., Ltd., at Broughton Bridge, Blackfriars Road, Manchester 3.

MR. ALFRED E. SMITH, a Member of the Southern Gas Board, has been elected an Alderman by Reading Town Council.

MISS M. R. SCHOFIELD has been appointed General Secretary to the Women's Advisory Council on Solid Fuel.

CORRESPONDENCE

Another case of the non-player screaming from the touchline

DEAR SIR,

I have read the section of Mr. Kelf-Cohen's book which deals with the gas industry, though I have not yet had time to read the other sections which I feel is necessary before drawing conclusions from one alone.

Mr. Kelf-Cohen, of course, had contact with the nationalised industries in his capacity at the Ministry of Fuel and Power, but I would nonetheless feel that this book is little more than another case of the non-player screaming from the touchline.

Off-hand I do not feel much inclined to rush into print on Mr. Kelf-Cohen's book, for I feel that we have passed the day when post-mortems are either useful or entertaining. Indeed, the main reasons for heavy capital expenditure by area gas boards are surely well known.

There was the necessity to deal with the overdue replacement of both production plants and distribution systems, aggravated as this was by the war and the threat of nationalisation, and the desirability of creating larger and more economic operational units out of the mass of ill-assorted undertakings nationalised, which had previously existed in relative isolation. These made heavy demands for capital on area boards, but surely these were parts of the task with which the boards were entrusted and, indeed, matters which all informed members of the public would expect them to tackle as soon as possible.

To me the main problem at this stage was to ensure that the difficult start that the gas industry had in so many places and which, of necessity, greatly influenced its finances, was effectively and properly dealt with.

The effect of such capital expenditure was fully appreciated in my own area as far back as 1950, when our very careful forward planning indicated that we should be able to reach parity between capital expenditure and depreciation provisions by 1959-60. Personally I do not think anyone with a full knowledge of the task involved between 1950 and today, will consider our estimates to have been very far from the mark when I say that we anticipate this capital position in 1962-63.

Quality of personnel

The author refers to the organisation of the gas industry. Frankly I think it is just about ideal in the context of nationalisation but what I think one needs to remember is that the provision of any kind of organisation does not itself ensure the success of an enterprise. That will always depend on the quality of those responsible within the organisation.

It is my own view that the most serious stumbling block that has prevented the gas industry from making greater progress in gas sales has been the relative cost of coal, which since 1938 can be represented by the indices 327, 419, and 483 respectively, for domestic coal, coal for electricity generation and coal for gas-making in the north western area, and I am still satisfied that the whole of our necessary capital expenditure since vesting date would be shown to be sound in every respect if these indices followed the natural supply and demand values.

In short, I feel that in view of the circumstances I have mentioned, nine years is nothing like long enough to form any sound judgment, and only our friends from the touchline would have, I feel, the temerity to offer it.

Yours faithfully,

D. P. WELMAN.

Chairman,
North Western Gas Board.

November 12, 1958.

Obituary

MR. EDWARD FRANCIS CHARLES, 51-year-old Manager of Oswestry gasworks, collapsed and died while attending a course at Warwick recently. Mr. Charles had been in the gas industry for 33 years. He joined the Oswestry undertaking in 1939. He was a prominent Freemason, being a Past Master of the Fitzalan Lodge, Oswestry, a member of the Fitzalan Chapter and of the St. Oswald's Mark Lodge.

Diary of Forthcoming Events

November 20. — YORKSHIRE JUNIORS: Whiteley's Café, Westgate, Huddersfield. President's Day.

November 20. — MIDLAND JUNIORS: Visit to works of the Rover Co., Ltd., Solihull.

November 21.—LONDON AND SOUTHERN JUNIORS: 'The Laboratory in Industrial Gas Practice,' by C. P. Henshilwood and R. Wharton (Watson House).

November 22. — YORKSHIRE JUNIORS: Sheffield. Paper on 'Desulphurisation by Oil Washing,' by R. Fleming and P. G. Harris. 2.30 p.m.

November 22.—SOUTH WALES SECTION, WALES AND MONMOUTHSHIRE JUNIORS: Cardiff. Paper by Mr. A. R. Bovington, Joint-holder of Woodall-Duckham Award, on 'Transmission and Utilisation' in the U.S.A.

November 24. — WEST MIDLANDS G.C.C.: Edmund Street, Birmingham, 3. Meeting at 2.30 p.m.

November 25.—LONDON AND SOUTHERN SECTION, I.G.E.: Pepys House, 14, Rochester Row, S.W.1. 'Some Problems Associated with the Production and Supply of Refinery Gas to the Gas Industry,' by I. F. S. Robinson, Technical Superintendent, Esso Petroleum, Fawley. 2.40 p.m.

November 25.—MIDLAND JUNIORS: Birmingham. Paper on 'The Genealogy of Remote Control,' by A. L. Hancock, Director of Walker, Crosweller & Co., Ltd. 6.30 p.m.

November 25.—SOCIETY FOR ANALYTICAL CHEMISTRY (PHYSICAL METHODS GROUP): Burlington House, London, W.1. Annual General Meeting followed by meeting on Modern Methods of Purification, including Paper on 'Preparative Scale Gas Chromatography,' by C. R. Patrick. 6.30 p.m.

November 26. — EASTERN SECTION, I.G.E.: London. Paper on 'Trends Toward Preventative Maintenance,' by W. Smith, Planning Engineer, and T. Pabst, Section Engineer, Vauxhall Motors, Ltd.

Lord Mills starts Isle of Grain gas flow

BY starting up a compressor at the Isle of Grain works of the South Eastern Gas Board last week, the Minister of Power, Lord Mills, initiated the flow of gas from the lately commissioned Segas plant to the South London grid.

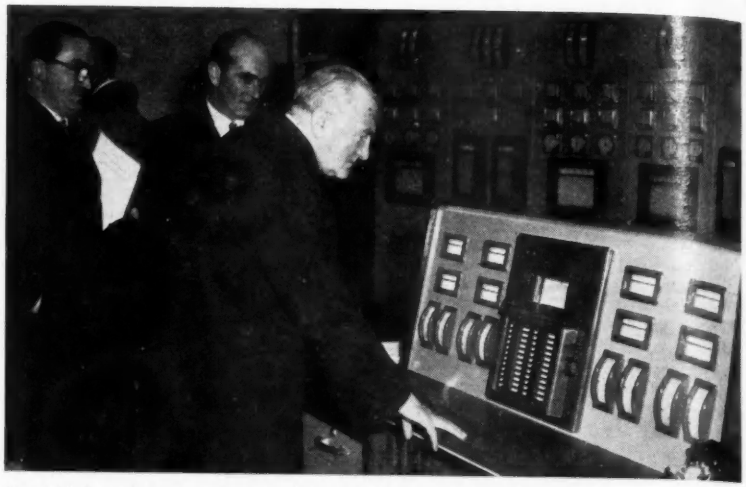
On arrival, the Minister, who was accompanied by Sir Reginald Ayres, Deputy Secretary of the Ministry of Power, and Mr. Owen Francis, Under Secretary of the Gas Division of the Ministry, was received by Sir Harold Smith, Chairman of the Gas Council, and Mr. W. K. Hutchison, Chairman of the Board.

Approaching completion

Welcoming the Minister, Mr. Hutchison, said that the Segas plant at the Isle of Grain, rated at 20 mill. cu.ft. per day capacity, was approaching completion. Two out of the four generators were up to working temperature.

Of these, one was operating intermittently on short proving runs preparatory to going into regular production. So far these tests indicated that it was producing gas of uniform and satisfactory quality.

Gas would be pumped into the London distribution system as made, although the plant was not expected to be in regular operation for a few weeks.



Lord Mills, Minister of Power, inspects the instrumentation on the central control desk in the main control room, during his visit to the S.E.G.B.'s new gas-from-oil plant, at the Isle of Grain. He is accompanied by Mr. W. K. Hutchison, Chairman of the Board, and, left, Mr. S. N. Skinner, Station Engineer.

FRENCH COMPANY TO ERECT GAS PLANT IN CUBA

THE Compagnie pour la Fabrication des Compteurs et Matériel d'Usines à Gaz has been awarded a $2.2 mill. contract for the building of a gas plant at Marianao, near Havana, Cuba.

The plant will incorporate a catalytic cracker for treating fuel oil, and will produce gas of high calorific value which will be piped to consumers under pressure.

Three subsidiaries of the Company are associated in the award of this contract. The Compagnie Générale de Construction de Fours will supervise the execution of the contract, and be responsible for the purifying installations, the storage tanks and the distribution system. The Compagnie des Compteurs will provide the gas meters, of which about 10,000 are expected to be ordered, and other machinery; while the Société du Gaz à l'Eau will be responsible for the gas manufacturing plant.

Clean air for Halifax

Halifax Corporation Health Committee has decided to recommend that the first smokeless zone in Halifax should come into force on October 1, 1959.

EX-CHAIRMAN CELEBRATES 90TH BIRTHDAY

CELEBRATING his 90th birthday yesterday was Major Robert Paul Kitson, past Chairman of the Torquay and Paignton Gas Company.

During the 88 years' existence of the Company there were only four Chairmen, and they were all members of the Kitson family—Mr. William Kitson, 1859; Mr. William Henry Kitson, 1883; Mr. John Kitson, 1904; and Major Robert Paul Kitson, 1911 until Vesting Date.

Mr. John Kitson was the first Secretary of the Company and held the post for 45 years until he was made Chairman. Major R. P. Kitson was Secretary for 7 years and was succeeded in that post later by Mr. Easterbrook, the father of Mr. Laurence Easterbrook, at present a part-time Member of the South Western Gas Board and an ex-Director of the old Company.

COCKTAIL PARTY IN LIVERPOOL

A cocktail party was held last month to mark the recent opening of the Liverpool depôt of Donald Macpherson & Co., Ltd., at Maguire Street, off Vauxhall Road, Liverpool, 3. Mr. H. M. Rowe, Deputy Chairman of the Company, greeted a large number of trade and industrial users and stockists from the Merseyside area.

Cannon (Holdings) maintain same distribution

CANNON (HOLDINGS) is maintaining its dividend at 15% for the year to June 30, 1958, with an unchanged final of 10%. Group profit is £88,456 (£90,104), subject to tax of £55,865 (£45,388).

Capital reserve receives £300,000, which, the Directors state, is an indication of the expansion programme now in progress.

The Board holds the view that the general reserve must be regarded as going a long way towards providing increased depreciation.

Ordinary dividend takes £25,875, and the carry-forward is reduced from £382,886 to £86,944.

BOOKERS ENGINEERING HOLDINGS LTD.

THE Board of Booker Brothers, McConnell & Co., Ltd., announce that Bookers Engineering Holdings, Ltd. (a member of the Booker Group of Companies) has purchased 90% of the issued share capital of Sigmund Pumps, Ltd., from members of the Sigmund family and from the Industrial & Commercial Finance Corporation. Mr. Miroslav Sigmund, the Managing Director of Sigmund Pumps, Ltd., retains a 10% interest in the Company and remains Managing Director; Mr. E. N. Robinson will be Chairman. The present management of the Company will continue as at present at Team Valley, Gateshead.

Western Juniors hold inaugural meeting

Board Solicitor reads paper on the lawyer's role in the gas industry

At the recent inaugural meeting of the Western Juniors Mr. W. E. Baggs (Bath) was installed as President for the new session.

In handing over the Presidential Chain of Office, the retiring President, Mr. J. B. Taylor said that the Western Association was a pioneer in widening the scope of its membership, and that this was the first time that an accountant had been elected to the Presidential Chair. He was sure that the Association would be very well served; the programme for the session was an augury of things to come under Mr. Baggs.

Mr. R. G. Laycock, Solicitor to the South Western Gas Board, then presented a paper entitled 'A Lawyer's Eye View in the Gas Industry' which was followed by a discussion covering a wide field of the Board's activities.

Vote of thanks

At the conclusion of the meeting, a vote of thanks to the speaker was proposed by Mr. F. G. Craxford, a past President of the Association.

After outlining legal aspects of the gas industry before nationalisation, Mr. Laycock said that when, in 1949, the industry was amalgamated into 12 areas controlled by boards with, to all intents and purposes, autonomous powers, nearly all the boards and the Gas Council, which co-ordinated them, appointed full-time legal officers at the outset.

The area boards appointed solicitors to hold these posts, as a solicitor, even though he may be engaged in full-time employment, is still permitted to continue as a practising lawyer in the same way as his counterpart in private practice, though he is limited to one client, whereas a barrister is subject to restrictions even as to his right of appearance before courts of minor jurisdiction.

In the case of the Gas Council, the problem of the day-to-day operation of gas undertakings from a legal point of view did not arise in the same way, as no such undertakings were vested in and operated by the Gas Council, and what was chiefly necessary was a lawyer for legal consultation on overall problems affecting the industry. The industry was fortunate in having a barrister in its employment who had intimate and wide experience of the industry and who was able to fill this appointment.

The question is often asked, what is the difference between a solicitor and a barrister—is a barrister a lawyer of higher status?

One answer to this is that there are two branches of lawyers, those to whom the layman goes direct for his advice and who can undertake the practical legal work which he may require and represent him as an advocate in magistrates' and county courts where the vast bulk of legal litigation is conducted, which is the solicitor's branch of the profession.

There are also those whose primary functions are as advocates in all courts throughout the land and who normally specialise in a particular branch of the law itself for the purpose not only of practising before the courts, but also of giving legal opinions on difficult problems and of drafting documents of an unusually complex nature; these are the barristers.

In order to obtain an opinion from a practising barrister, a layman has first to go to a solicitor and it is the solicitor who instructs the barrister in order to obtain a second specialist opinion.

While the gas industry has, logically, adopted a legal organisation which fits into the pattern of this professional picture, the solicitors to the area boards are individually responsible for advising their respective boards and are not in any way bound either by opinions of the Legal Officer to the Gas Council, whose function is to advise that Council, nor by any consensus of opinion amongst the solicitors to the remaining boards.

Rule of precedent

The rule of precedent is one which, in law, is of the utmost importance. To ensure that the gas industry has the best means available at its disposal for the solving of legal problems and that, as far as practicable, legal precedents are created or avoided in a way which will most benefit the industry as a whole, regular consultation takes place between the barrister who is the Legal Officer to the Gas Council and the solicitors to the area boards.

At these discussions any problem of unusual complexity or legal difficulty can be discussed and decisions of tribunals or agreements with other authorities can be passed on to assist in the operation of other boards.

In this way a problem which may arise whether in John o' Groats or in Penzance, the action on which may, and often does, affect boards in other areas in similar circumstances, can be considered in relation to the activities of the industry as a whole and steps taken to safeguard its interests.

From what sort of spheres has the gas industry drawn its practising lawyers? Are they men who have grown up with the industry before public ownership, or have they been attracted to the industry from public service and private practice outside?

Reference has already been made to the Legal Officer to the Gas Council who has had intimate and extensive experience of the gas industry and who has made this knowledge available to the gas industry in an annotated copy of the Gas Act, 1948, and to the legal world as a whole in a leading publication in which the laws of England are published.

In some area boards there are solicitors and barristers who hold appointments as full-time and part-time members of boards and other appointments where the nature of the duties and responsibilities may be wholly or only partly non-legal.

In all such boards, however, there is at least one solicitor who is solely concerned with and whose primary responsibility is legal work and with matters closely allied with it, and who joins with the solicitors to the other boards and with the Legal Officer to the Gas Council in the consultations referred to.

Before their whole-time employment by an area board, the majority of these solicitors were engaged in practice with local authorities, under which they gained experience of the operation of statutory undertakings as run by those authorities, and of similar legal problems to those which not uncommonly arise in the industry.

In some cases, of course, the local authorities concerned were themselves gas undertakers before public ownership was transferred to the area boards. In a few cases solicitors have been appointed to area boards in succession to employment with previous gas undertakers. These instances have, however, occurred only where boards have incorporated undertakings which were previously operating directly on a large scale where there were full-time legal officers employed before 1949 whose contracts of employment were transferred under the Act.

Limited number

The reason for this is probably because, apart from local authorities who were former gas undertakers, and whose legal adviser was normally the town clerk who remained with the local authority after vesting date, the majority of gas undertakers were either too small to employ a full-time solicitor or barrister, or were within a group of undertakings controlled by a holding company which used a large firm of private solicitors to undertake its legal work.

The number of lawyers available who were wholly employed in the industry was therefore limited. In the transitional change from private to public control which involved responsibility to Parliament and not to the shareholders of a private company, it was not unnatural that the industry should seek from the legal profession lawyers who were

accustomed to practice in public service, and especially from the field of local government where statutory undertakings were run in conjunction with other services and which therefore bred familiarity with administrative as well as purely legal duties.

In the years since the beginning of the second world war, there has been an extension of public control in many fields, and the imposition of legal obligations by Act and Regulation, the satisfactory fulfilment of which has been placed in the hands of government departments and local authorities.

Continual co-ordination

Solicitors who have practised in local government have, therefore, not been concerned merely to know what legal requirements have had to be complied with, but also the machinery by which their operation is enforced and the manner in which the government departments in London, who may be concerned with such matters, approach the problems.

In local government there is also the additional experience of continual co-ordination between the lawyers who are employed by the various authorities and their engineers who implement the proposals for the carrying out of public schemes which, on a large scale, have since the war been put into effect, both in relation to housing, industrial development, highways, public health, water and, until 1947-48, gas and electricity.

When the area boards were formed, the problems arose of carrying on the industry on a large-scale regional basis and of the transfer of many small undertakings to one comprehensive authority for which Regulations were made by Parliament under the Gas Act, 1948, which had to be construed and implemented within time limits which were mainly specified.

Apart from the normal legal problems arising on the operation of gas undertakings, there were bound to be many extraordinary problems arising out of these transfers, which would need the constant attention of a lawyer.

The formation of full-time legal departments was therefore a natural corollary, and even to-day it cannot be said, after nearly ten years of operation, that all the intricate transitional legal problems which arose as a result of the vesting under the Act of 1948 have been solved, though the vast bulk of these has been successfully finalised with very little recourse to contentious action.

Reorientation

The employment of full-time legal officers by the gas industry is not, however, to-day out of step even with private enterprise where there has been a tendency towards the merger of individual companies and the employment, within the large-scale organisations produced, of full-time lawyers who are readily to hand and who acquire an intimate knowledge of the working and needs of the particular industry.

The effect of the transfer to public ownership has meant some reorientation of ideas and outlook to those who have continued their former service in the industry under public ownership, even though the personalities who shoulder the responsibilities of the industry in its new form have largely grown up in the industry. In the case of the legal code applicable to the industry, the Gas Act, 1948, made in many ways what was a completely clean sweep.

The area boards themselves were quite unique in their separate constitutions under the Act in relation to the Gas Council and the then Minister of Fuel and Power. Proof of the wise choice made by Parliament, of the legal constitutions so created, is manifested in the recent change in the organisation of the electricity industry, in which similar public statutory corporations with powers conferred in like manner largely exist to-day.

The old code which had been established in 1847 and 1871 and other Acts of Parliament which had been passed to meet the changing needs of the industry were repealed in 1949, and the Gas Act, 1948, replaced these as the sole Act conferring powers on the industry and regulating its relations with its consumers and the public. Only those private local Act provisions survived which were of continued application and which were not inconsistent with the new code.

Position altered

In the Act of 1948, some provisions applicable to everyday operations have been incorporated, quite naturally, from the earlier Acts, but there are new provisions which have altered the legal position, as it existed before, in relation to the day-to-day working.

The legal departments of the area boards which have grown up, as it were, with the Gas Act, are, of course, faced with many problems which arise directly on the construction of the Act. The Third Schedule, which contains the code of provisions relating to gas supply, has become familiar to all those, whether lawyers or not, who are responsible for administering the day-to-day operations.

But even after over nine years of working under the Act, problems frequently arise which require careful consideration of the wording used, and it is not unlikely that these problems will continue to re-occur and to occupy a proportion of the time of the area boards' legal officers.

General application

The Gas Act contains 77 sections, of which approximately 50 will have general and continued application even when the problems associated with the vesting of the undertaking in public ownership are finally disposed of. The code in the Third Schedule to the Act has 46 paragraphs, on any one of which some problem may arise; the 47th paragraph applying the code to Scotland.

For the industry's own special problems there are, therefore, nearly 100 enactments in the Act which require to be observed or borne in mind, and, in addition, Regulations have been made under the Act which are contained in

Wales and Mon. Section hold annual meeting in Cardiff

THE Lord Mayor of Cardiff, Alderman A. J. Williams, gave a civic welcome to the annual general meeting of the Wales and Monmouthshire District Section of the Institution of Gas Engineers in Cardiff recently.

Alderman Williams said the gas industry had achieved a measure of devolution in Wales and the Wales Gas Board had taken the fullest possible advantage of it. 'When I plead the cause of Wales I am able to cite the wonderful progress you have made since you achieved your power,' he said.

Alderman Williams was thanked by the Chairman, Mr. I. W. Thomas, who then welcomed Mr. George Currier and Dr. Braunholtz of the Gas Council.

Presenting the report of the Management Committee, Mr. J. Powdrill, Secretary, expressed the meeting's pleasure at the honour conferred on Mr. W. T. Hird of the Wales Board, who was made a Member of the Order of the British Empire.

Presenting the statement of accounts, the Treasurer, Mr. O. P. Cronshaw, said it had been decided to make a donation of £102 14s. 2d. to the Institution Benevolent Fund as a mark of respect to the Institution President, Mr. E. M. Edwards, himself a member of the District Section. Mr. Edwards said he was deeply moved by this very generous gesture.

There followed the election of the new Chairman, Mr. W. F. Edwards, of Port Talbot, proposed by Mr. A. Pickard (Swansea) and seconded by Mr. J. Fitton (Neath).

Other elections included Senior Vice-Chairman, Mr. H. B. Kendrick; Junior Vice-Chairman, Mr. S. L. Wright; Hon. Secretary, Mr. J. Powdrill; Hon. Treasurer, Mr. O. P. Cronshaw; Hon. Auditors, Messrs. H. Blythe and A. Pickard.

The new Chairman then introduced Mr. J. B. Currier, Deputy General Manager and Engineer of the Cardiff undertaking, who read his paper. 'The Reconstruction Programme in Hand at Grangetown Gasworks, Cardiff.'

A paper was also read entitled 'Jet Boosting,' by Messrs. D. Craven, Assistant Distribution Engineer (Transmission), Wales Gas Board; and A. W. Spelman, Distribution Technical Assistant, Wales Gas Board.

At the luncheon which followed the meeting, Mr. E. M. Edwards proposed a toast to the District Section. Mr. Frank Edwards proposed a toast to the City of Cardiff and Guests, to which the Lord Mayor replied.

statutory instruments, of which more than 30 of general application have been approved by Parliament.

Because Parliament has decreed that nationalised boards in relation to the gas industry should be permitted to operate on a commercial basis, apart from the provisions which are designed specifically to control the day-to-day operations, most of the powers which have been conferred on the area boards and on the Gas Council are in wide general terms to secure this objective.

But as the area boards are public authorities which are answerable in the ultimate to Parliament, there are nevertheless some restrictions and safeguards which have been provided in the general public interest and of which careful note has to be taken.

An example of this is Section 10 of the Act, which requires that each year an area gas board shall give an account of itself to Parliament through the Minister who is responsible for the implementation of the Government's policy in relation to the nationalised fuel industries.

While this Section is concerned with administration requiring little attention from the industry's legal officers, other provisions, such as those which confer powers to lay mains, have given rise to a not inconsiderable number of problems from time to time.

Apart from the operation of and compliance with the industry's own domestic Acts, it is natural that with areas as large as those controlled by the area boards, with the large numbers of staff and workers they employ, and with the extensive control of property and apparatus in which they engage, the scope of legal enquiry and activity can embrace almost every aspect of legal work in which a lawyer can engage.

Subjects as widely diverse as public health, the law relating to water and watercourses, company law, highways law, agricultural law, arbitration, bankruptcy law, insurance law, probate law, and sale of goods can arise. Some of the main topics are briefly referred to hereafter.

Conveyancing

The sale, purchase and leasing of property involves conveyancing, which is a particular function of the solicitor. This embraces such matters as town and country planning, and the rights and restrictions in relation to tenancies of residential and industrial property.

The laying of mains to convey gas in bulk, of which there has been a tremendous extension since public ownership of the industry, requires the grant of easements or analagous rights to ensure that the mains can be operated for their required life.

Area boards have been conferred with compulsory powers, both in relation to purchase of land and easements, and although in general the industry has received full co-operation from owners of property, occasionally it is necessary to obtain the benefit of those compulsory powers and to carry out the administrative procedure which has been laid down.

In so doing, while the powers are obtained under the Gas Act itself, yet the rights as to compensation and as to the implementation of the powers are those which equally apply to local and other public authorities who, in the public interest, have been given similar authority.

Every area board has to run a large number of vehicles, and accidents inevitably occur from time to time which involve the raising of claims for damage caused. Accidents also inevitably occur in other fields of the board's operations and claims have to be negotiated and the rights of the board protected.

Civil proceedings may arise in the minor courts or in the High Court and every solicitor to an area board has to have the services of a firm of London solicitors, as agents, and sometimes of local solicitors practising where the business of the courts is carried on.

It is not uncommon for such agents in London to be both solicitors and parliamentary agents who are able, therefore, to deal with legislation, as mentioned after, and also to assist in High Court proceedings and in obtaining counsel both for advice and for representation in the High Court.

Both in the commercial and engineering fields, contracts are required, which may be as widely diverse as the construction of an engineering plant or the hiring of a gas heater. The installation of gas supplies in conjunction with the development of private and public property also frequently requires the settling of contracts.

Form of contract

The tariffs which each area board has to lay down under the Gas Act are themselves a statutory form of contract in which conditions have to be provided.

The collection of the debts of an area board is a matter of first importance, and the successful organisation of a unified system of co-ordination between the accountancy, commercial and legal functions of an area board in cases where non-payment is forthcoming, can result in increased efficiency and considerable savings.

The collection of unpaid accounts involves the initiation of legal proceedings in a large number of courts, and the maintaining of good relations with the officers of the county courts or magistrates' courts, which deal with most of the debts, can go far towards avoiding delay.

Apart from the ordinary contractual debts, there are the specialised contractual debts of hire purchase which are mainly controlled under special statutory provisions and where proceedings of an individual character are normally required.

With so many employees, problems inevitably arise on such matters as pensions (requiring not only consideration of the industry's own pension provisions, but also the provisions of the general law in relation to trusts), terms of employment, rights to compensation, and even such matters as the relationship between employers and employees in the right to patent inventions.

An aspect of an area board's legal work, which is largely unobtrusive, arises from a power which has been conferred to promote and oppose Bills in Parliament.

It is a common practice of local and other authorities to seek special powers by private Act which are not available to them under the general law. Inevitably, from time to time, an organisation such as an area gas board, which embraces the area of many local authorities, is affected by the proposals for these special powers, and negotiations have to be conducted and sometimes formal opposition made where such local powers would be detrimental to the operations of a board or of the industry as a whole.

Much of the law of the land has been built up from the precedents created by decisions of the courts, and in the same way statutory powers can grow up out of Parliamentary precedent, so that what to-day may be merely a local power and restriction, may tomorrow be of national effect, and if protection is necessary, therefore, it must be sought at the earliest opportunity.

London representation

This work means that there have to be parliamentary agents in London who can submit advice for consideration by the industry's legal officers as to the provisions of Bills which are presented each year, and a legal officer may have to attend committees of the Houses of Parliament, in conjunction with other officers who give evidence in support of amendments to a Bill.

Apart from private Bills, Bills of Parliament for national legislation also have to be considered and advice tendered as to whether amendment should be sought on behalf of the industry.

From time to time problems occur in relation to the criminal law and proceedings may arise both in minor courts of summary jurisdiction and in the High Court, to which attention must be given.

The foregoing sketch of legal work in the gas industry and those who undertake it may enable others engaged in the industry in different spheres to understand and appreciate something of the lawyer's background and function, and that there are few aspects of the industry, whether as an engineering industry, a public authority, a commercial organisation, a property owner, or an employer of labour, which do not at some time engage his attention or require his consideration.

In an age which is rapidly becoming one of specialists, it is natural that the gas industry, which has so many special problems of its own, should have its domestic lawyers who will live and work in the atmosphere of the industry and seek to resolve the solution of its problems in relation to its powers, rights and obligations and those of persons affected by its operations or with external control.

The law has no bounds and the lawyer's eye view of the industry must, if he is to give a full and effective service, embrace a wide horizon both within and outside the industry, as well as the details of the minutest problem which calls for solution.

: TRANSATLANTIC CABLE :: TRANSATLANTIC CABLE :: TRANSATLANTIC CABLE :

U.S. natural gas reserve now totals 246 bill. cu. ft. — BUT HOW LONG IT WILL LAST IS ANYBODY'S GUESS

NEW YORK, October 31.

From

HILDING H. CARLSON

DURING the past 12 years, additions to proved recoverable reserves of natural gas in the U.S. have exceeded the total net production by 97.4 bill. cu.ft. Based on current production rates, that excess is equivalent to adding 8½ years of supply.

The total reserve now stands at 246 bill. cu.ft., according to the latest annual review by a committee of American Gas Association, using extensive geological data. The new total includes additions aggregating 20.3 bill. cu.ft. last year. Total net production of natural gas here during 1957 was 11.5 bill. cu.ft.

With an almost-constant increase year by year in those underground reserves since the first estimates were made in 1919, the Editor of the 'GAS JOURNAL' asked this correspondent, 'How long is natural gas expected to hold out in the States — are supplies virtually unlimited?'

A categorical answer to either question would be most presumptuous, indeed. The factors influencing further enlargement of the proved reserve are technological, economic and regulatory. How one or all of those factors move in the future will determine the extent to which there is new exploration for gas here. However, there is much more to consider than meets the eye in the latest 'official' reserves figure.

There will be vigorous denials, but *actual* reserve probably is in the order of double the 'official' reserve. For 'strategic' corporate reasons, most large gas producing companies—which, not-so-incidentally, are also major petroleum companies—understate their reserves. 'We report only 40% of our gas,' one major company executive told us. 'Yes, and so do the others. Of course, we'd all deny that and there is not a piece of paper in our records that shows our report to be wrong.'

Even though there is that reserve, 'how long' and 'unlimited' must be answered with due regard for another set of considerations: Technologies and economics of natural gas as a raw material. Vast sums are being allocated to utilisation of gas totally as a raw material. Certainly it is not visionary to contemplate development of technologies in this field which would utilise tremendous volumes of gas and which would find it economic to pay the going or premium prices for that gas.

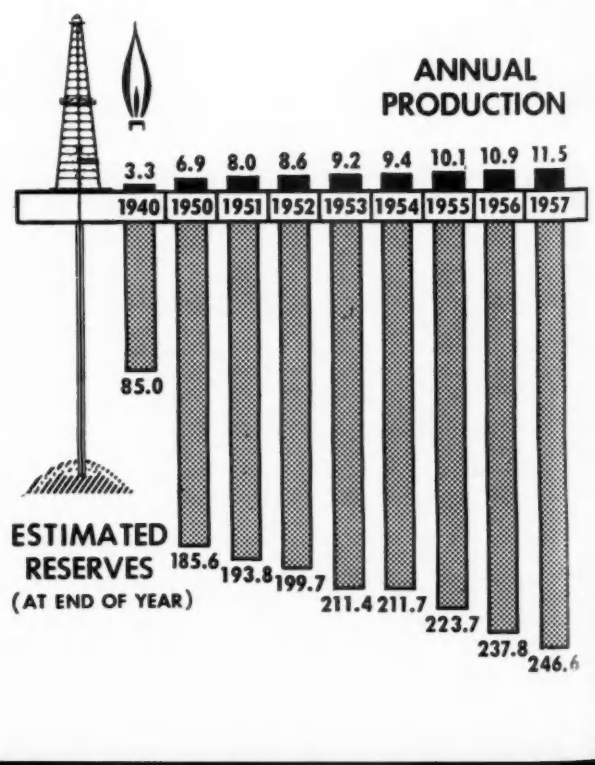
That would mean a new market for the producers, very likely near the points of production and also beyond the jurisdictions of regulatory agencies. Then, 'it must follow, as the night the day,' that such gas would be committed to the more attractive market. Then, as more and more volumes were delivered for utilisation as raw material, the reserve available for fuel deliveries would dwindle even though actual production soared to multiples of last year's total.

The startling accomplishments that have come out of British and American research and development programmes, throughout industry and science, serve as continuing cautions against any assumptions that cannot be nailed down. That is why the present gas reserve here, divided by the current production, might look something like 11½ years—but, also, might be expanded to 23 years or shrunk to five.

The American industry is not sitting on its well-padded gas cushion and saying smugly, 'We've got it made'! Here are the titles of current research projects listed by Dr. Thomas Lee Robey, American Gas Association's Director of Research: Production of natural gas substitutes . . . pipeline gas from coal . . . high pressure hydrogasification of residual oils . . . effect of nuclear irradiation on the activity of methanation catalysts.

RECORD EXPENDITURE

CONSTRUCTION expenditures in the industry this year will reach a new high with a forecast of £667.9 mill. by American Gas Association. Anticipated construction for 1958-59 is expected to aggregate £1,287.7 mill., an increase of 8.4% over the records for 1956-57. More



Reserves and production in billions of cu. ft.

than 96% of the total will be used for expansions of natural gas facilities. The industry's network of mains now totals 549,000 miles, including 23,600 miles added during 1957.

ASSOCIATION MEMBERS

BRITISH manufacturers with membership in Gas Appliance Manufacturers Association include Ascot Gas Water Heaters, Ltd.; Geo. Bray & Co., Ltd.; Concentric Manufacturing Co., Ltd.; General Gas Appliances, Ltd.; R. & A. Main, Ltd.; Parkinson Cowan Appliances, Ltd.; and Radiation, Ltd. Canada is represented by 16 manufacturers; West Australia by one. Argentine and Mexico have two companies each in the GAMA membership. Germany and Japan have one company each.

PUBLIC OPINION

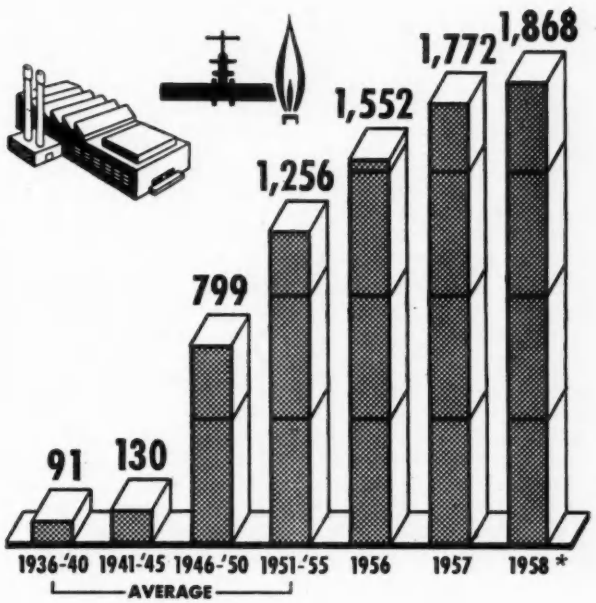
A NATIONAL public opinion survey will be started early in 1959, 'to ascertain the public's knowledge of attitudes toward the gas industry.' The project will be sponsored jointly by American Gas Association and Independent Natural Gas Association. It will be conducted by Opinion Research Corporation. Mr. James M. Beall, Director of AGA public information, has invited member-companies to take advantage of the national project by making plans for more specific local surveys to be conducted at the same time by the same researchers.

SACRED COW

IN most American companies, the shareholder's sacred cow position is given prime attention by management with ever-heightening words of endearment. Most executives would rather choke than go on the public record as specifically placing that sacred cow in the Number Two spot. During a recent hearing before Federal Power Commission, one of the statesmen of the American industry, Mr. Paul Kayser, President of El Paso Natural Gas Co., which is reputed now to be the world's largest, was asked if his first duty was to the shareholders. 'No, no, that is not right,' Mr. Kayser emphasised. 'The first duty is to the consumer . . . It is a fundamental principle on which we all [of the El Paso company] act . . . Any business has to be on that basis.'

GOVERNMENT CONTROL

AMERICAN GAS ASSOCIATION, in one of its periodic bulletins urging the industry to be aware of the 'slow and steady' gain in government-ownership of gas systems, emphasises that there are now 515 such systems in 34 states. Numerically, the gain is 64 since the end of 1956. While the gas volume sold by the Government-owned (largely municipal) systems is relatively small (5.7% of the industry total), AGA tells its member-executives that the 'greatest step toward bolstering free enterprise and halting this growth in municipal gas systems is to tell the story of the investor-owned companies—the advantages they offer, the taxes they pay, the way of life they support, the old but tried economic truth that . . . every individual, every company, every industry pays its own way. The story must be told continually to everyone — customers, employees, neighbours, other business ventures and other industries.'



American gas industry construction figures in millions of dollars

WAR-TIME GAS

THE Gas Panel of the Military Petroleum Advisory Board, working under the U.S. Department of the Interior, is about to embark on a study of gas requirements in the event of enemy attack. Certain assumptions of disaster will be given and the study is to produce information on gas requirements and supply, manpower and materials.

LEAK DETECTOR

A MOBILE analyser for the detection of gas leaks is under test by Southern California Gas Co., Los Angeles. The new infra red unit is reported as being 50 times more sensitive than the units this undertaking has been using. Leakage has been detected while the unit is moving at normal city speeds in an automobile and at faster speeds on highways.

This analyser is powered by a 6 V. battery. Gas samples are drawn through a curtain of approximately 34 probing flexible tubes arranged on the front bumper of the car. When the gas to which the unit has been sensitised is drawn in, an audible signal is heard in the car. Then, a hand-held probe, connected to the same analyser, is used to locate the specific surface point of the leak.

WATER HEATERS

AN analysis of the capacities of automatic water heaters by Gas Appliance Manufacturers Association for these dispatches points up the expanding uses of more and hotter water for household purposes.

Tank size, gallons, as percentage of manufacturers' shipments

	Less than 30	30-to-39	40-to-54	55 and larger
1957 ..	17·9	80·5	80.5	1·6
1956 ..	18·4	80·0	80.0	1·6
1955 ..	19·9	55·8	23·1	1·2
1952 ..	32·0	58·0	8·8	1·2
1947 ..	43·4	47·4	7·9	1·3

CONVERTED HOLDER

OLD-TIMERS in the American industry must have been startled more than a bit when they learned that a 3-mill. cu.ft. gasholder had been converted for grain storage. In St. Joseph, Missouri, the Gas Service Company's holder was judged to be too small for economic use in view of the additional natural gas pipeline facilities that have been constructed. When the company announced its decision, grain men proposed the storage scheme. Now, after extensive preparatory work, the holder is filled with a million bushels of wheat, equivalent to the capacity of 694 railway cars.

SALES CAMPAIGN

THE first all-out campaign to sell the new smokeless-odourless gas incinerator in a major market has just been completed in the Chicago metropolitan

area with a campaign by manufacturers, undertakings and appliance dealers. Extensive promotional efforts were put forth in newspapers, on radio and television, by direct mail to central heating customers, and with showroom displays for dealers and undertakings. The market area includes, in addition to the City of Chicago, parts of the states of Illinois, Indiana and Wisconsin. Nine manufacturers co-operated in the campaign.

NATURAL STEAM

PACIFIC GAS AND ELECTRIC CO., San Francisco, has announced plans to utilise natural steam from geysers to produce electric power. A pilot plant will receive steam at 100 p.s.i. and 348°F. at a rate of 265,000 lb. per hour. This will be the first use of geothermal steam for commercial production of electricity and the world's first privately-financed plant. Others, Government-subsidised, are reported from Italy, New Zealand and Mexico.

GAS FILM

'ACROSS the Board with PR,' is the title of a 27-min. film, with colour and sound, produced by Southern Counties Gas Co., Los Angeles, with case histories of public relations activities. Prepared primarily for gas employees, the film has been found interesting by a variety of other audiences. Now through American Gas Association's public information bureau, the film is being publicised to the industry as one that is available for widespread use.

INEXPENSIVE PROCESS

ECONOMIC studies conducted by the research institute of University of Denver, Colorado, report that basic costs for retorting shale-oil in a commercial plant would run as low as 3s. 2½d. per barrel, utilising a process under development at the institute.

NEW REQUIREMENT

A LONG-STALLED American gas cooker development is about to become a production-line fact. Completely automatic ignition for ovens and broilers, as well as top-burners. After January 1, 1959, all gas cookers that are to qualify for American Gas Association's seal of approval must be fully automatic. Originally, that requirement was to have become effective at the start of 1957. The postponement was allowed by AGA as a result of the pleas, protests and anguish registered by some manufacturers, with cost-and-selling price as the principal basis.

The new date for the approval requirement, set by AGA's Board of Directors, was not arrived at without complaint from the manufacturers. However, AGA has followed up on its determination with a number of actions that render the date irrevocable. A letter to all gas undertakings advised them of the new requirement and suggested local activities for them.

The letter, signed by the AGA President, noted that the new approval requirement 'practically eliminates the need for matches in the home insofar as gas is concerned. In addition to safeguarding against human frailty, the improvement in modernity and convenience of the cooker will serve to strengthen our competitive position.'

A basic statement accompanied the letter for use in notifying municipal authorities and publicising the development to employees, appliance dealers, architects and builders. Another letter was directed to federal and state public housing administrations.

The AGA determination to finalise the date for the requirement was not quite the end of the story. Mr. Clifford V. Coons, President of Gas Appliance Manufacturers' Association, also Executive Vice-President of Rheem Manufacturing Co., proposed to AGA at the convention last month that the undertakings, cooker manufacturers and controls manufacturers put forth a 'mutual effort' to underwrite the additional cost of the automatic oven and broiler ignition.

It is doubtful, indeed, that many of Mr. Coons' audience from the undertakings really caught much of that 'underwriting' story.

Automatic ignition for commercial cooking equipment has been mandatory for approval since 1957.

Natural gas again features at Canadian national exhibition

THE Natural Gas Centre made its second appearance at the annual Canadian National Exhibition in Toronto and exhibitors were well pleased with the indications of interest from the visitors. Exhibitors at the Gas Centre numbered 26 and presented an attractive variety of products associated with the industry. The centre covered 14,000 sq. ft. A feature of the exhibition period was a six-roomed residence and garage, equipped for gas cooking, heating, refrigeration, water heating and laundry drying that was given away to an exhibition visitor by draw. The house, erected under the sponsorship of Consumers' Gas Co., Toronto, was valued at £6,425 with its lot in a location near Toronto.

APPLIANCE SALES

THE Canadian industry seems determined to put renewed effort into retail appliance selling, based upon reports from a two-day sales and promotion workshop conference conducted by Canadian Gas Association in Calgary last month. A national advertising programme, with a budget of £53,600, was started recently. Dr. H. L. Purdy, CGA President, emphasised the need for a national programme with the comment that CGA 'is now truly on a national scale. In the past, we have had to deal with problems particular to each area, but now we are a national industry.'

PUBLIC RELATIONS

PUBLIC relations for the gas industry in Canada will be under an expanded programme that will seek to achieve the aims formulated by a Canadian Gas Association committee during a recent conference in Toronto.

The eight principal PR objectives were summarised: Co-ordinate public relations by CGA members through interchange of ideas . . . Establish information service for the public . . . Closer liaison with American Gas Association's public relations programmes . . . Develop and maintain good Press relations . . . Present the importance of the industry in the Canadian economy . . . Improve communications among members of the Association . . . Study the public opinion of the industry . . . Establish CGA as the representative and spokesman for the industry.

COST OF LIVING

BRITISH COLUMBIA ELECTRIC is using a display home, called 'Ease of Living Home,' to promote gas in the Vancouver area. A forced warm air system, designed by B.C. Electric's heating sales engineering section, features zone control. The house has three zones. The living, sleeping and basement areas form those zones. The first two zones are controlled by clock thermostats and the basement recreation zone is equipped with a manual thermostat. An outdoor temperature-sensing element is incorporated in the control system for maximum 'on' periods by the gas burner and air circulator. Air is distributed throughout the house by ducts connected to perimeter registers that diffuse the warm air along the outer walls. The furnace has a capacity of 200,000 B.t.u. per hour. B.C. Electric estimates the annual heating cost at £100. The same installation, using fuel oil would have an operating cost of £128 10s.

UP AND UP

NORTHERN ONTARIO NATURAL GAS CO. predicts a 30-year industrial upswing for northern and north western Ontario after making a long-term survey of its franchised area. By 1988, demand for gas in homes, business and industry may reach 892 mill. cu.ft. daily —an 800% increase from the current level.

NEAR COMPLETION

GAS-ACROSS-CANADA will soon be an operating fact, with the completion on October 10 of the last weld on the 2,300-mile Trans-Canada Pipe Lines, Ltd., project that had more rocky roads than those provided by the Dominion's topography, during the three years that it was a-building.

Demineralised Water in Boiler Practice

By A. R. MYHILL, F.R.I.C.

IT is well known that practically all water from natural resources contains substances, both solid, as calcium, magnesium and sodium salts in solution and silica in various forms, and dissolved gases such as oxygen and carbon dioxide, which need partial or virtually complete removal or modification in composition and/or physical characteristics, in order to render the water suitable for use in steam boilers. There is no system of water treatment which is universally applicable, but a choice of a combination of several methods must be made to suit, not only the particular feed-water, but also the special conditions of its use, such as type of boiler, and working pressure. Boiler water treatment is carried out with the object of avoiding trouble due to corrosion and scale formation in the boiler itself, and, to a lesser extent, in pipes, valves, superheaters, cooling systems, and mechanical appliances such as turbines through which the steam has to pass.

Water 'Softening'

The amount of impurity normally present in natural waters is very small. Thus, a moorland drainage water may have only 50 ppm. of dissolved solids, which is only .005%, while water from a chalky area may have 500 ppm. or .05% of dissolved solids. Small though these proportions are when expressed as percentages, the very large volumes of water consumed in industrial usage, together with the concentration of soluble or scale-forming constituents due to evaporation, make it necessary to assure that the total quantity of dissolved solids is kept as low as possible. Methods of removing the bulk of the substances capable of causing these troubles, are well known, and are employed with the main object of 'softening' the water[1, 2, 3, 4]. The adoption of increasingly higher boiler pressures, however, together with closer tube-spacing has made it desirable, in many cases, to remove a much greater proportion of the impurities than heretofore. In considering this subject, it is convenient to classify boilers according to their working pressure, those operating below 500 p.s.i. being in the low or medium pressure ranges, and those working above this figure being classed as high-pressure boilers[2]. Up to the present, boilers in the latter category do not normally form part of gasworks equipment, and are mainly confined to power station practice. It is not easy to forecast the probability of the use of these high steam pressures in future gas making operations, but, in view of the high-pressure gasification processes using steam which will undoubtedly come into commercial production in the not-too-distant future, the special treatment of boiler feed water is a subject which is well worthy of attention.

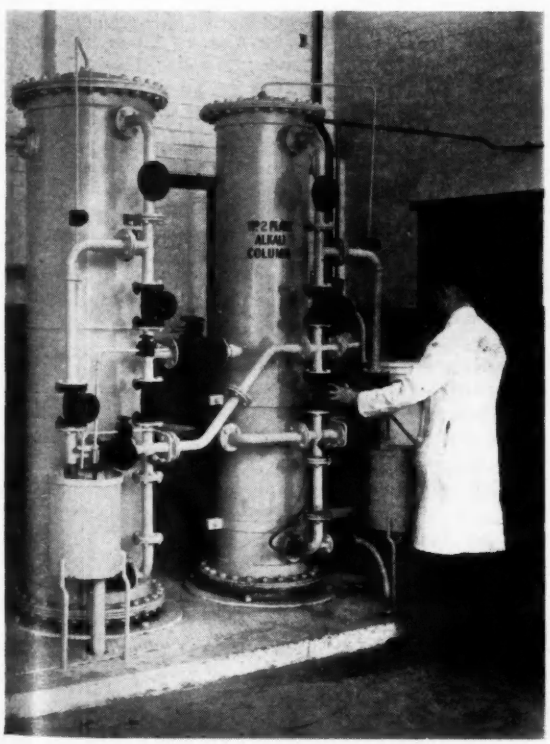


Fig. 1. Two-bed demineralising plant.

Deposit Varieties

The particular problems connected with behaviour of water in high-pressure boilers are not yet fully understood, and experience obtained from different waters and boiler plant has, in some cases, shown unaccountable variations. In addition to the ordinary scale depositions due to water hardness such as are well known in medium-pressure boilers, there may also be special kinds of deposits in high-pressure practice. For instance, certain scales may contain sodium compounds, some of which may re-dissolve, but others, as, for example, analcite (sodium aluminium silicate) are more troublesome, and can best be dealt with by the elimination of silica and alumina from the water before entering the boiler. The phenomenon of 'sludge-blanketing,' whereby a sticky sludge is produced, may occur with waters having a high magnesium content, and one suggestion for overcoming this is to maintain an equilibrium of magnesium and silica, whereby a non-adherent sludge (serpentine) is formed. At pressures above about 600 p.s.i., at which the trouble is most apparent, there is a risk of turbine deposits, and, in the few plants in America where silicate additions have been tried for this purpose, they appear to have been discontinued. Silica in boiler water may lead to the production of a very hard type of scale, and acts as a binder for other scales.

With working pressures above 600 p.s.i., silica is volatile in steam, and may pass forward in this way to

cause troublesome deposits in turbines. Deposits resulting from this type of carry-over are formed in the medium and low pressure stages of the machine, *i.e.*, after the steam pressure has been reduced below the threshold value at which silica deposition can take place. For use in boilers working under very high pressures, there is little doubt that the most important advance in water treatment is 'demineralisation,' in which the extraneous substances are virtually completely eliminated, with the production of a product of a purity comparable with that of distilled water. The cost of demineralising can be fairly high, but its advantages are without question, and, except in a very few special cases, it is much cheaper than using distilled water. Demineralisation can be used to produce water of various degrees of purity as required, depending on modifications in procedure and type of purifying material used. The treated water may have a total dissolved solids content ranging from under 1 ppm. to about 20 ppm., and a silica content of .05 ppm. to 10 ppm. It will be of interest to trace the development of the demineralisation process from the well known and widely used zeolite, or base exchange principles of water softening.

Ion-exchange

When a mineral salt dissolves in water, it becomes dissociated into equivalent quantities of positively charged cations which constitute the metal radicals —calcium, magnesium, sodium—and negatively charged ions (anions) comprising the acid radicals—sulphates, chlorides, bicarbonates, etc. Certain naturally occurring minerals and other products made by synthetic means, known as zeolites, possess ion-exchanging properties. When water containing dissolved calcium or magnesium salts is passed through a bed of such material, ion-exchange takes place. The zeolite takes up some of the ions from the solution and transfers an equivalent number of ions from itself to the solution. The Permutit base exchange water softener operates on this principle. Hard water is passed through a column of granular ion-exchange material carrying exchangeable sodium ions, which replace the calcium and magnesium ions abstracted from the water, the latter attracting themselves to the ion-exchange material. The water thereby becomes softened, and the action continues until the material contains no more exchangeable sodium. It then becomes necessary to 'regenerate' the zeolite by washing through with a solution of sodium choride, which displaces the attached calcium and magnesium, and restores the replaceable sodium for further use. This process is widely used for producing water of zero hardness, suitable, for example, for waste-heat boilers as normally used in conjunction with carbonising plant. It does not, however, reduce the dissolved solids, since the hardness-forming calcium and magnesium salts are merely converted into the equivalent sodium compounds. In the quest for a process which would not only completely soften the water, but also remove all the dissolved solids, it has long been realised that the substitution of the older forms of ion exchanger, by a material capable of exchanging hydrogen ions for the calcium, magnesium and sodium ions in the water might prove to be the first step towards demineralisation. It is obvious, however, that such a process would yield, as first product, a water free from calcium, magnesium and sodium salts, but containing, instead of dissolved solids, their equivalent of hydrogen 'salts,' *i.e.*, free acids, which would then need removal. Moreover, regeneration of the exchange material would have to be carried out, not by washing with a salt solution, but by means of acid, to restore the spent material to its hydrogen-exchange condition.

In 1935, the Permutit Co. Ltd. evolved the first hydrogen-ion exchange material in a form suitable for commercial use. This consisted of a product obtained by the sulphonation of carbonaceous material. Shortly afterwards, investigations began on the possibility of making not only cation exchange materials, but also substances which would exchange anions, since it was realised that, by a combination of the two systems, it should be possible to effect complete demineralisation. By the use of synthetic resins, a material was ultimately produced having the ability to absorb strong acids from a solution percolating through it. Thus, in order to effect demineralisation, the first step would be to convert the salts in the water to equivalent acids by hydrogen-ion exchange, and the second would be the removal of the acids by anion exchange. The first commercial demineralising plant of this type was put on the market by the Permutit Company in 1937. Several thousands of basically similar demineralisers have been supplied to users since that date, although important improvements to the original type have been evolved in recent years, particularly as regards the composition and characteristics of both the cation and anion exchange materials to suit special waters and to effect various degrees of demineralisation. The standard two-bed 'deminrolit' plant consists of cation exchange and acid absorption columns operating in series. The first column converts the salts in the water to the equivalent acids as shown by the equations below:

A. Cation removal:

1. $Ca\begin{cases}HCO_3 \\ HCO_3\end{cases}\ \begin{matrix}H\\H\end{matrix}\Big\}\ E \longrightarrow H.H.CO_3 + CaE$

Calcium bicarbonate + hydrogen exchanger —> carbonic acid + calcium exchanger.

2. $\begin{matrix}NaCl\\NaCl\end{matrix}\ \begin{matrix}+\ H\\+\ H\end{matrix}\Big\}\ E \longrightarrow \begin{matrix}HCl\\HCl\end{matrix}\ \begin{matrix}+\ Na\\+\ Na\end{matrix}\Big\}\ E$

Sodium chloride + hydrogen exchanger —> hydrochloric acid + sodium exchanger.

3. $CaSO_4 + \begin{matrix}H\\H\end{matrix}\Big\}\ E \longrightarrow \begin{matrix}H\\H\end{matrix}\Big\}\ SO_4 + CaE$

Calcium sulphate + hydrogen exchanger —> sulphuric acid + calcium exchanger.

After passing through the cation exchange column, the partly treated water flows through the anion exchange unit whereby the acids are removed according to the following equations, and demineralised water (the exact composition of which depends on the type of acid-absorbing material used) is produced and passes to storage or for direct use. (See note below on removal of CO_2 by de-gassing where necessary.)

B. Anion (acid) removal:

4. $\begin{matrix}HCl\\HCl\end{matrix}\ +\ D \longrightarrow D\begin{cases}HCl\\HCl\end{cases}$

Hydrochloric acid + 'de-acidite' —> 'de-acidite' hydrochloride

5. $\begin{matrix}H\\H\end{matrix}\Big\}\ SO_4 + D \longrightarrow D\begin{cases}HSO_4\\H\end{cases}$

Sulphuric acid + 'de-acidite' —> 'de-acidite' sulphate

After the cation exchange material contains no more replaceable hydrogen, and the anion exchange material

becomes saturated with removed acids, it is necessary to regenerate these reagents. This is done by passing dilute mineral acid through the bed of cation exchanger, whereby the hydrogen ions are replaced and calcium, magnesium, and sodium are expelled as salts of the acid used as shown below.

C. Regeneration of cation exchanger:

6. $CaE + \begin{matrix}H\\H\end{matrix}\Big\} SO_4 \longrightarrow \begin{matrix}H\\H\end{matrix}\Big\} E + CaSO_4$

Calcium exchanger + sulphuric acid —> hydrogen exchanger + calcium sulphate

7. $\begin{matrix}Na\\Na\end{matrix}\Big\} E + \begin{matrix}H\\H\end{matrix}\Big\} SO_4 \longrightarrow \begin{matrix}H\\H\end{matrix}\Big\} E + \begin{matrix}Na\\Na\end{matrix}\Big\} SO_4$

Sodium exchanger + sulphuric acid —> hydrogen exchanger + sodium sulphate

The anion exchanger is regenerated by flushing the material with an alkaline solution which may be either sodium carbonate or caustic soda, according to the type of 'de-acidite' used.

D. Regeneration of 'de-acidite':

8. $D\begin{cases}HCl\\HCl\end{cases} + \begin{matrix}Na\\Na\end{matrix}\Big\} CO_3 \longrightarrow D + \begin{matrix}NaCl\\NaCl\end{matrix} + \begin{matrix}H\\H\end{matrix}\Big\} CO_3$

'De-acidite' hydrochloride + sodium carbonate —> 'de-acidite' + sodium chloride + carbonic acid

9. $D\begin{cases}HSO_4\\H\end{cases} + \begin{matrix}Na\\Na\end{matrix}\Big\} CO_3 \longrightarrow D + \begin{matrix}Na\\Na\end{matrix}\Big\} SO_4 + \begin{matrix}H\\H\end{matrix}\Big\} CO_3$

'De-acidite' sulphate + sodium carbonate —> 'de-acidite' + sodium sulphate + carbonic acid

The Permutit Co. Ltd. manufactures a large range of ion exchange materials of which the following are examples:

Cation exchangers

'Zeo-Karb Hl' is of the sulphonated carbonaceous type and consists of irregularly shaped granules up to about 1 mm. diameter.

'Zeo-Karb 225' is of recent introduction and has an exchange capacity considerably higher than that of the older materials. It is a sulphonated polystyrene resin of bead formation, the beads having an average diameter of less than 1 mm. It is robust, and withstands chemical attack and high temperatures, operating successfully at 100°C.

Anion exchangers

'De-acidite E' functions as an acid adsorber when used in the second column of a two-bed demineralising plant. It adsorbs only strong acids such as sulphuric and

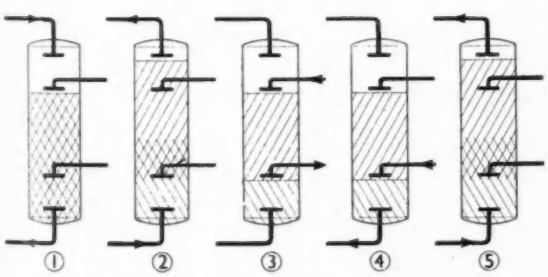


Fig. 2. Mixed-bed Deminrolit plant—operating sequence.

1. Normal working.
2. Separating cation and anion exchange resins by back-washing.
3. Regenerating anion exchange resin with soda.
4. Regenerating cation exchange resin with acid.
5. Remixing cation and anion exchange resin by air blowing.

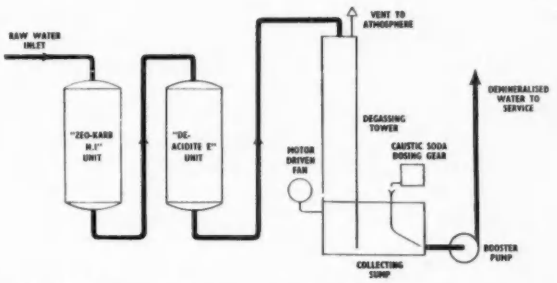


Fig. 3. Two-bed Deminrolit plant consisting of a Zeo-Karb Hi cation exchange unit, a DeAcidite E medium basic anion unit, and a degasser.

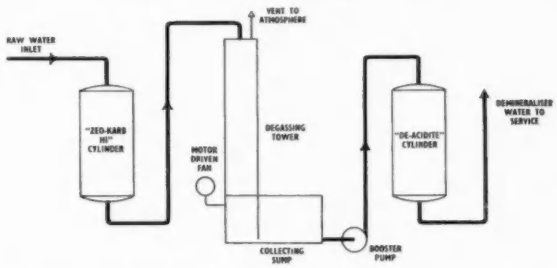


Fig. 4. Two-bed Deminrolit plant consisting of a Zeo-Karb Hi cation exchange unit, a degasser and a DeAcidite FF strongly basic anion unit.

hydrochloric, and has no action on silica and carbon dioxide. Sodium carbonate is used as a regenerant.

'De-acidite FF' is of the polystyrene type in the form of beads, and has an extremely high exchange capacity, being a strong base material which will remove both strong and weak acids, including silica and carbon dioxide. The regenerator used is caustic soda.

In 1941 the Permutit Co., Ltd., was granted a patent covering the use of cation and anion exchange materials mixed together in a single column. Water passing through such a column comes into contact with grains of cation and anion exchange materials alternately and is, in effect, subjected to a very large number of demineralising stages. Typical figures for removal of dissolved solids and silica are: Total dissolved solids, less than 1 ppm., and silica, less than 1.02 ppm.

The use of polystyrene bead resins has enabled the problem of regeneration in a mixed column to be solved, since the anion type is appreciably lighter than the cation. It is thus a simple matter to separate the mixed materials hydraulically by passing an up-current of water through the column. The lighter anion beads are carried upwards and the cation material sinks to the bottom. Two perfectly separated layers are thus produced which can be regenerated individually, and then re-mixed by air-blowing for another treatment run. The operating sequence is shown in Fig. 2. In specifying a plant for producing water of any desired composition, considerable care is necessary in deciding which combination of units and of materials will give the best results consistent with the lowest capital and running costs. Three typical basic plant layouts are illustrated in Figs. 3, 4, and 5. In Fig. 3 the raw water is passed in series through a cation exchange unit, a medium basic anion unit and a de-gasser unit for removing CO_2. The de-gasser consists of a tower filled with packing rings. The

demineralised water flows downwards through the tower and is distributed over a large surface area where it comes into contact with low-pressure air blown in at the bottom of the tower. Carbon dioxide is thereby liberated and is vented to atmosphere from the top of the tower. This combination of plant produces water containing about 10 ppm. of residual dissolved solids and all the original silica. The layout shown in Fig. 4, in which a strongly basic anion unit is employed will produce water practically free from silica and containing less than 5 ppm. dissolved solids. The de-gasser unit is positioned between the cation exchange unit and the 'de-acidite' column in order to reduce the load on the anion material. Fig. 5 shows an arrangement which will produce demineralised water of the highest quality, comparable with multiple distilled water, and having total dissolved solids as low as .4 ppm. with silica of only .02 ppm. The layout is virtually the same as that shown in Fig. 3, but with a mixed bed unit which removes residual solids, CO_2 and siiica.

Although there are, as yet, no installations of complete demineralising plant in gasworks in this country, there are large numbers in use, both for boiler feed and for process use, in other industries. There are, however, quite a number of partial demineralising plants in British gasworks, including recent installations at Howden, Isle of Grain, Dover, Romford, Ponders End and Gillingham. These plans operate by the so-called 'starvation' process in which the Zeo-Karb material is regenerated with both acid and salt, thus functioning partly by hydrogen and partly by sodium exchange. The process is particularly suitable for dealing with waters high in bicarbonates and low in sulphates, chlorides, and nitrates. It produces a treated water of zero hardness and reduced total solids. The raw water is divided into two streams of pre-determined flow ratio. One stream passes through

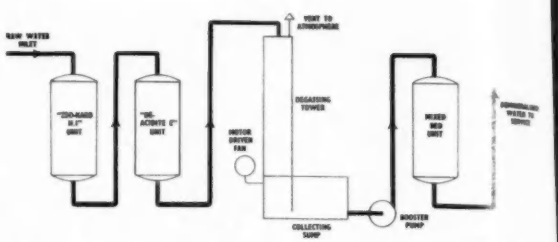


Fig. 5. Multi-bed Deminrolit plant consisting of a Zeo-Karb Hi cation exchange unit, a DeAcidite E medium basic anion unit, a degasser and a mixed bed unit.

a Zeo-Karb H1 bed operating as a hydrogen ion exchanger, and the other stream through a similar bed operating as a sodium ion exchanger. The mixed effluents are passed through a de-gasser for removal of CO_2, the acid in the water from the hydrogen-ion unit being neutralised by the sodium bicarbonate in the sodium ion-exchanger effluent. The correct proportions of acid and alkaline effluents can be determined from the analysis of the raw water and the desired composition of the treated water.

In conclusion, the writer would like to acknowledge the assistance and co-operation given by The Permutit Co., Ltd., London, in the preparation of this article.

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Radioisotopes Help Underground Gas Scheme

RADIOACTIVITY is helping to solve a number of problems in Britain's scheme for underground gasification of coal. Scientists of Humphreys & Glasgow, Ltd., who are building the pilot plant for the N.C.B. at Newman Spinney, near Chesterfield, have used radioactivity successfully in four ways.

Tracer Tests: The radioisotope Krypton 85 as a tracer gas been been injected into an airstream to determine the position of leakage in underground piping. It has similarly been used to indicate the rate at which coal is being gasified underground, the occurrence of subsidence of roofing or the merging of two borehole fires. The Kr. 85 tracer technique has been developed by scientists of Humphreys & Glasgow, Ltd., in collaboration with the isotope division at Harwell.

Borehole Location and Intersection: Engineers at Newman Spinney found that accurate drilling of a vertical borehole to intersect a horizontal one was difficult with available survey methods. The problem has been solved by using the radioisotope Cobalt 60. A full-sized horizontal hole is drilled and a small diameter vertical hole sunk to the expected location for intersection. If this misses, a source of gamma radiation is placed in one borehole and a counter in the other. Radiation is then transmitted through the coal barrier and measured, by comparing this value with known standards, already determined, the separation can be found and intersection achieved.

Coal Sensing: Another problem was the accurate directing of the drilling bit along the seam. Deviations due to irregular strata cause wastage in time and labour. The general layout of coal strata having previously been discovered by vertical and horizontal drilling, an instrument using radioactive cobalt and developed by the Mining Research Establishment of the N.C.B. is used to give warning if the drilling bit is in danger of leaving the coal seam.

Control of Drilling Using Natural Radioactivity: The variation in the amount of natural radioactivity occurring in different strata may be used to enable drilling to be kept on course.

Public Works Exhibition was biggest yet

GAS INTEREST TRADE STANDS REVIEWED

A BIGGER than ever Public Works & Municipal Services Congress and Exhibition was to be seen at Olympia, London, from November 10 to 15. To meet the demand from nearly 400 exhibitors the stands were re-arranged to provide 15,000 sq. ft. of extra space in the three halls.

Most of the equipment displayed, from small scientific instruments to massive earth moving machines, was available for export, since nowhere else in the world is it possible for overseas buyers to inspect, under one roof, such a comprehensive display of products needed by contractors, civil engineers or municipal authorities for projects of all kinds.

A number of papers were read at the five day Congress run in connection with the exhibition. They covered a diversity of subjects and included a paper by Dr. F. J. Eaton on 'Heat Services by Gas in the Modern Dwelling.'

A. C. E. Machinery, Ltd. showed two new 'Ace-Bomag' double vibrating rollers, providing direct to ground vibrations. The smaller type BW.60, for bituminous materials, base courses, sand, gravel, etc. is ideal for trench reinstatement work. It gives a comparable roller effect of ½ to 6 tons according to ground and materials, with a net weight 7 cwt. The larger, type BW.75, for hardcore, under surface and top dressings of roadways, runways, etc. gives a roller effect of 1 to 10 tons with a net weight 12½ cwt. Both machines can be loaded on to vehicles and unloaded under their own power. On this stand also were handscrapers which are now available powered by diesel engines in addition to previous electric and petrol driven models. Electrically powered duplex and triplex puller winches for dragline duty were also on view.

Automotive Products Co., Ltd. On this stand were to be seen 'Lockheed' industrial hydraulic equipment for remote control and operation, as shown in a typical cabinet for operation by power hydraulic or manual hydraulic means. Hydraulic pumps and motors, slave cylinders, accumulators and all ancillary equipment were also on show, together with Borg and Beck and Rockford industrial clutches and power take-offs. Lockheed-Avery flexible hoses and self sealing couplings in a new range of types and sizes, standard detachable re-usable end fittings enabling flexible lines to be made up to any length required, and breakaway couplings in a wide variety incorporating easy manual operation without spanners were also exhibited.

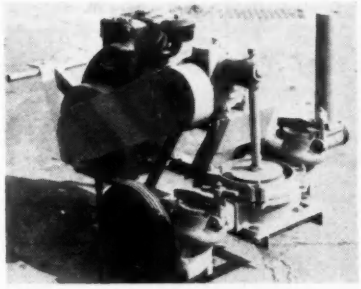
Broom & Wade, Ltd. were showing a number of portable air compressors in the range 120 cu.ft. to 630 cu.ft. per minute, air operated sump-pumps, hand hammer drills including their B.W.D.120 pneumatic hand drill for plug holing, brickwork chasing, etc., and the Aro-Broomwade pneumatic mini-hoists for lifting up to ½ and 1 ton respectively.

Clay Cross (Iron and Foundries), Ltd. showed spun iron pipes in sizes from 3 in. to 18 in. diameters to B.S.S. 1211-1958 and from 100 mm. to 400 mm. to I. S. Specification, and flexible pipe joints of both the bolt type and set screw type. Of particular interest was the new Tyton joint which the Company are now manufacturing under licence. Special pipe castings from 2 in. up to 60 in. diameter were to be seen and in particular the new I.G.E. gas syphon.

Included too, were spun pipes with screwed-on flanges which are obtainable in all sizes from 3 in. to 18 in. and in any length from 2 ft. to 12 ft.

George Cohen Sons & Co., Ltd. who are suppliers of all contractors' plant and tools on sale or hire were showing a Jones KL 10-6 mobile crane, mounted on pneumatic tyres and patented restrictor wheels with a capacity of ten tons, a Bray hydraulic loading shovel, a Stothert & Pitt vibrating roller and a dial automatic twin bucket batch weigher, incorporating two 14 cu.ft. capacity bottom discharging skips.

Consolidated Pneumatic Tool Co., Ltd. shown for the first time at this exhibition were the new class FE stationary compressor of balance-opposed design, and available in capacities up to 5,000 cu.ft. per minute, and the Tornado No. 503 tunnel drill. Examples of 'power vane' rotary portable compressors with



The Johnson Model III LD diaphragm type mud and sludge pump fitted with Lister diesel engine, air balancing chamber and special long life heavy duty diaphragm.

the latest versions of diesel drive and other types of compressed air plant and equipment, including breakers, picks, pumps, vibrators, and pneumatic tools were also on show.

Ford Motor Co., Ltd. showed a selection of Fordson 'major' and 'dexta' tractors and allied equipment together with a display of Ford industrial engines. Among the Ford engines on view were the renowned three, four and six cylinder diesel and four and six cylinder petrol engines. A display of ancillary equipment was also to be seen on this stand.

Hattersley Bros., Ltd. were exhibiting the new No. 2 'Merton' convector fire with back boiler which can provide domestic hot water and heat a towel rail or radiator. The Nos. 1 and 1A Merton convector fires (non-boiler models) were also shown, the modified Leander continuous burning fire which now complies with B.S.S. 2845 was being shown for the first time. Other exhibits included the Swinton sunken fire, the Forum back boiler unit, the Leander self contained boiler flue unit, the Swinton adjustable throat restrictor and Swinton fires and frets, together with the Vulcan domestic gas fired boiler.

The Horstman Gear Co., Ltd., showed a full range of gas controllers and comets for the automatic control and ignition of gas lit street lamps. Comets eliminate the need for constantly burning by-passes.

C. H. Johnson (Machinery), Ltd., were exhibiting three dumpers, the new 'One-20,' the 'Twin-65' and the 'One-35'; four pumps, the 4-in. Mark XII, the 3-in. Mark XIVA, the 2-in. Mark VIIIA, and the model IIILD; concrete vibrators, and road making equipment.

Michigan (Great Britain), Ltd., were showing the model 380 Michigan tractor dozer with 20-ft. blade, the Clark all wheel drive and power train, with a turbocharged diesel engine of 375 h.p. equipped with four speeds forward and reverse, and also the model 275A Michigan tractor shovel with a 4-cu. yard capacity bucket equipped with all wheel drive and a turbocharged diesel engine of 262 h.p. with four speeds forward and reverse.

R. H. Neal & Co. Ltd. exhibited the NL.250, a 25-ton lorry mounted crane, equipped with torque converter giving a high hoist rope speed for light loads; the NS.150 self-propelled 15-ton mobile crane, capable of lifting its load without jacks, and equipped with power operated

All-round warmth with

In office or shop . . .

NEW WORLD

460 CONVECTOR

★ The NEW WORLD 460 Convector is essentially a background heater, particularly suitable for installation in large rooms, halls or shops. Handsome in appearance, the heater lends itself extremely well to two-colour treatment.

★ The NEW WORLD Convector is flueless and may be connected to gas from either side in any convenient position.

★ The outer casing and front panel are finished in a choice of colours — see below — whilst the expanded metal grille and lighting hole are chromium-plated. Gas Rating: 7,500 B.t.u./hr. All Gold; Gold outer case with cream front; All Bronze; Nubian outer case with cream front.

Concentrate on

steering, and the Neal 'Lymark' hydraulic crane, capable of travelling with a 1,000-lb. load with its boom horizontal at 8-ft. outreach with an overall height of 8 ft. With all hydraulic motions, it has an 8-ft. telescopic beam of maximum outreach of 16 ft.

Newton Chambers & Co., Ltd., were exhibiting the latest additions to their earth moving range, the 'NCK 403' shovel and the 'NCK 205' 'skooper.'

Frederick Parker, Ltd., were showing among other exhibits the 'Loadascreen,' a new Parker development, which is a portable belt loader with a single or double-deck vibrating screen at the discharge end to grade into two or three sizes. It has applications for handling stone, gravel, coal, coke and similar material. Parker concrete mixers of many types and sizes, including the new half-bag mixer with a capacity of 4-3 cu.ft., were also to be seen. Of these the 'non-tilt' mixer is fitted with 'powerscoop' loading and batch weighing.

E. Pass & Co., Ltd., were exhibiting a wide range of under-pressure engineering equipment of interest to gas and water engineers. Among these were to be seen two new type machines for turning and cutting asbestos cement pipes; mechanical aids for underpressure drilling, and tapping and pipe cutting, using power drive units; enclosed gear drilling machines for high pressure pipelines; a large underpressure drilling and tapping machine for drilling and tapping up to and including 6-in. B.S.P. thread, and a hydraulic thrust boring machine for laying maintenance services under roads or carriageways without interruption to traffic.

Pegson, Ltd.—On this stand were to be seen in operation the Humboldt resonance screen, which is self compensating for load and has an exceptionally high capacity per sq. ft. of screen area; the Wibau 'Wimpeller and Impactor' bitumen mixing unit, exhibited for the first time, and Pegson power rammers, road rippers and pump sets.

The Rawlplug Co., Ltd.—Exhibits on this stand included the well-known Rawlplugs, the universal fibre plug for every size of screw and coachscrew, Rawlbolts, metal expansion bolts for fixing heavy gear without grouting, Rawlanchors for soft wall board, gravity toggles for panel walls, spring toggles for ceilings, Rawlnuts for hollow pot, bolt anchors and Rawltamps for bolts. Other fixing accessories to be seen on this stand were durium tipped drills for rotary drilling, Rawltools, stardrills, triform drills, durium hammer drills for electrical operation, and P.H. bits and rods for pneumatic tools. The new 'vibroto' electric drilling machine, combining a high rate of vibratory action with rotation for making holes in concrete, and using 'vibroto' hard tipped drills, was being demonstrated. The Rawlplug drill hammer for converting a suitable electric drill into a powerful percussion hammer, was also being exhibited.

Sheepbridge Equipment, Ltd., were showing the 'Sheepbridge Kennedy' vibration screen—the result of over 30 years' experience of screen design and manufacture—which has high screening efficiency, accurate sizing, low operating costs and complete reliability. Other exhibits were the 'Sheepbridge' bar feeder, combining a bar feeder and grizzly, which has variable ratio drive enabling the output to be regulated when working, and the 'Sheepbridge Jules Weitz' tower crane, type G10.

Weatherill Hydraulic 12H loading shovel with 1½ cu. yard scoop in use at a gasworks. Note the very full scoop.

Thos. Smith & Sons (Rodley), Ltd.—On this stand were to be seen the Smith '8' excavator, a small universal excavator capable of handling buckets up to ¾ cu. yard capacity, and powered by a 3-cylinder diesel engine delivering 28 b.h.p. at 1,300 r.p.m., and the Smith '21' universal excavator, fitted with the deep digging gooseneck trencher equipment. The power unit fitted to the latter is a Ford 6D diesel engine with the power take off through a twin disc torque converter. The bucket capacity is ¾ cu. yd.

The Stanton Ironworks Co., Ltd., were showing spun iron pipes for water, gas or sewage mains in diameters up to 27 in., which have been submitted to a hydrostatic test of 500 lb. p.s.i. before leaving the works; spun concrete pipes of diameters up to 78 in., and prestressed concrete pressure pipes of diameters of 27 in. and above. Also to be seen were flexible joints for cast iron and concrete pipes, mechanically demonstrated and shown in section form, which included the Tyton flexible joint, the screwed-gland flexible joint, the bolted-gland flexible joint, all for cast iron pipes, and the Stanton-Cornelius flexible joint for concrete pipes. Special castings for pipe lines were also shown.

The Staveley Iron & Chemical Co., Ltd., showed socket and spigot cast iron pipes centrifugally cast; metal spun, 2½-in. to 12-in. diameter; sand spun, 8-in. to 24-in. diameter; vertically cast, over 24-in. diameter only—and spun pipes with screwed-on flanges, 2½-in. to 18-in. diameter. Also to be seen on this stand were flanged pipes to B.S.S. 2035:1953; concrete lined pipe for special water supply purposes; bitumen sheathed pipe for use in aggressive soils; epoxy resin lined pipe for conveyance of corrosive fluids; and special castings, socket and spigot specials, and flanged fittings of all types, and the new standard I.G.E. syphon for gas mains.

Stewarts & Lloyds, Ltd., were exhibiting a wide selection of their products, including examples of steel pipe for conveying water, gas, sewage, air, steam, etc., in sizes ranging from ⅛-in. to 72-in. in diameter. A special display illustrated the laying of a section of a water main by means of a Tubewrights' tubular gantry. Other exhibits included large main joints, tubular steel lighting columns, and various fabricated tubular steel products. The activities of Tubewrights, Ltd., an S. & L. subsidiary specialising in the design and fabrication of tubular steel products, were illustrated by a range of photographs and various models.

Stothert & Pitt, Ltd. Among the exhibits on this stand were to be seen a truck mixer of 3½/4 cu. yard capacity on a chassis, a mobile electrically driven asphalt plant, and a 14/10 NT concrete mixer with integral hydraulic weigh gear and scoop.

Turners Asbestos Cement Co., Ltd. This exhibit specially featured 'Everite' asbestos cement pressure pipes in a wide range of classes and dimensions made to B.S. 486, up to 24-in. diameter, and asbestos cement screw joints up to 9-in. diameter. Also to be seen were a display of cast iron pipe fittings with sections of 'Everite' pipe which have been under aggressively corrosive conditions to emphasise the advantages of the latter.

Victaulic Co., Ltd. Exhibited on this stand were flexible pipe joints; 'Victaulic' joints and fittings for steel, cast or spun iron pipes, with prepared ends, suitable for water, sewage, gas, etc., at pressures from zero to 1,500 lb. p.s.i.; 'Victaulic' toggle joints in sizes from 2-in. to 6-in. diameter, for extra quick make and break; Viking Johnson couplings and flange adapters for plain ended pipes in steel, cast iron or spun iron, concrete and plastic; Viking Johnson junior couplings and fittings for plain ended steel pipes, in sizes from ½ in. n.b. to 2 in. n.b. and thermit welded connections to bond pipe ends

and couplings to obtain electrical conductivity for cathodic protection of pipeline.

Thos. W. Ward, Ltd. On this stand, seen among a selection from the range of contractors' plant supplied by the Company on sale or hire, were the J.C.B. trencher, conveyors, a loading shovel, contractors tools and equipment, and protective clothing.

Warsop Power Tools, Ltd., were exhibiting the Warsop C.B. rock drill; the 'Jupiter' rammer—a new model, with the carburettor specially designed for economy and reliability and no complicated adjustments required in operation, and capable of a blow force of 9,930 p.s.i. There was also on show a full range of high quality centrifugal self-priming pumps, petrol, diesel, direct electric and belt driven models for contractor and general industry, and high pressure for fire fighting and spraying.

F. E. Weatherill, Ltd., were showing the 12H general purpose loading shovel—the latest addition to the Weatherill hydraulic range—which has a 40° scoop crowd, 360° visibility, a low scoop carrying position, a 12 ft. discharge height and good forward reach; the 2HHCR Hi-Tip loading shovel—specially designed for feeding the extra high hoppers of coal and coke screening and bagging equipment or other plant—with a discharge height of over 16 ft. but able to be garaged in a space with 8 ft. 4 in. headroom; the 4HTW 'two-way' overloader, a particular feature of which is, in addition to normal front end loading, its ability to load over the top in a straight line.

Whitlock Bros., Ltd. On this stand were exhibited the Whitlock 'Dinkum Digger Major' hydraulic excavator, fitted with hydro-power stabilisers for levelling up on uneven ground, with buckets available from 12 in. to 72 in. in width and capable of excavating to a depth of 14 ft. through an arc of 190°; the Whitlock hydraulic power grab, of ¾ yard capacity—a new attachment for the Dinkum Digger Major, which loads and unloads over sides of trucks and hoppers 10 ft. high, and digs square holes for poles, concrete piers, etc., to a depth of 9 ft.; the Whitlock face shovel; the Whitlock ¾ yard power shovel, with a range of attachments, including scarifying teeth, and the Whitlock power roll—a novel and most useful attachment to the Whitlock power shovel.

Winn & Coales, Ltd., showed sectional models and photographs to illustrate a few of the many ways in which Denso anti-corrosion products are employed by public services and industry alike throughout the world. Practical examples on view showed the complete and permanent protection afforded by Denso under practical conditions, above or below ground *or* under water. Self-adhesive and cold applied over a wide temperature range, Denso tapes are based on an inert petrolatum compound with carriers of cotton, glass or nylon.

Whitlock roll attachment fitted to standard Whitlock power shovel.

Plans afoot to finance further European coal and coke stocks

IT is expected that the High Authority of the European Coal and Steel Community will shortly launch a plan to finance further additions to the huge stocks of coal and coke that have been accumulating.

Latest published figures show these at 23 mill. and 5.25 mill. tons respectively against some 6.5 mill. and 1 mill. tons a year ago. Stocks of coal in electrical, gas, and other plants, in railway yards and steel mills amount to 16.5 mill. tons, or 1 mill. above the total of September, 1957.

The experts believe that stocks of coal may reach 29 mill. tons by the end of this year and are not hopeful of any rapid decline next year, since in addition to maintaining European production at a high level in order to avert unemployment and later, perhaps, another scarcity of miners, foreign coal on long contracts will continue to pour in.

To existing stocks at pitheads France and Germany have each contributed about one-third and Belgium almost another third. However, in France the boom is not yet over; imports remain under governmental control (through an organisation which the High Authority has attacked but which this time seems to have served a purpose) and no excessive orders were placed abroad.

Of Belgium's 111 mines (of which 104 lie in the south) over half have been cutting out two to eight working days in a month, so that September showed a 'loss' of 190,000 tons against a total output of some 2 mill. So far this year, Belgian production is down by 4% against the 1% for France and the ½% for Germany, compared with the corresponding period of 1957. Here the trouble is both American imports and poor mines, which find it difficult to reduce prices.

N.G.B. extensions

The Northern Gas Board has given details of gasworks extensions in the Sunderland area, to the Sunderland Division Consumers' Committee of the Northern Gas Consultative Council. The extensions, which are being made at Hendon, Sunderland, will be completed in about two years' time and will have a daily output of 9 mill. cu.ft. of gas. The Board is laying a new main which will improve supplies in the Seaburn and Whitburn Village areas.

THIRD CONFERENCE ON AUTOMATION IN THE HOME

'AUTOMATION is a word which a lot of people fear,' said Dame Vera Laughton Mathews, Adviser to the Gas Council on Women's Affairs, in her opening address at a recent conference at Watson House. 'This is partly because they think it will jeopardise their jobs, and partly due to the fear that their jobs will lose the human element,' she explained; and went on to say that since 46% of the women employed in Britain were married they could not object to anything which would make housework easier.

This conference on 'Automation in the Home' is the third to be organised by the Gas Council for leaders of the various women's organisations. The earlier ones dealt with 'Clean Air' and 'Safety in the Home.'

One of the chief speakers was Mr. W. F. Moore, Heating Engineer to the South Eastern Gas Board, who spoke on the subject of house warming. Mrs. Joan Robins, Chief Home Service Adviser to the North Thames Gas Board, spoke on automation and cooking.

The conference closed with a tour of the exhibition of the latest gas appliances.